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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,249	04/05/2004	Tohru Nakano	251418US2	2736
22850	7590	12/26/2007		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER WALSH, RYAN D	
			ART UNIT 2852	PAPER NUMBER
			NOTIFICATION DATE 12/26/2007	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

TH

**Office Action Summary****Application No.**

10/817,249

**Applicant(s)**

NAKANO ET AL.

**Examiner**

Ryan D. Walsh

**Art Unit**

2852

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 November 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 and 43-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 43-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. See MPEP § 2173.05(c). Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claims 43-46 recites the broad recitation "wherein the blade member has a thickness of 50 to 200 micrometers", and the claim also recites "preferably 100 to 500 micrometers" which is the narrower statement of the range/limitation.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7, 11, 43 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Montfort et al. (US Pat. # 5,842,102), hereinafter referred to as Montfort.

Regarding claims 1 and 11, Montfort teaches, "(Image forming apparatus including...) A cleaning unit for removing toner remaining on a surface of an image carrier (Fig. 3, ref. # 10) of an image-forming apparatus, comprising: a vibration member (84) extending in a direction of a width of the image carrier, the vibration member having at least one vibration application part (102) attached thereto; a blade member (91) attached to at least an end region of the vibration member, the blade member extending in the direction of the width of the image carrier; and a driving part configured to drive the at least one vibration application part at a driving frequency, the driving frequency being a natural resonance frequency occurring at a time of assembly of the blade member and the image carrier (Col. 4, Ln. 67- Col. 5, Ln. 2), wherein the vibration member is configured to provide vibration to the blade member and a force to press the blade member against the image carrier (Col. 5, Ln. 2-3), and wherein the at least one vibration application part and the blade member are disposed on a first side and a second side, respectively, of the vibration member at a free end thereof, the first side and the second side of the vibration member facing away from each other (Fig. 3 of Montfort shows 91 and 102 disposed on first and second sides at a free end and both the first and second sides face away from each other)."

Regarding claim 7, Montfort teaches, "wherein the at least one vibration application part includes a piezoelectric element (Col. 5, Ln. 59-60)."

Regarding claims 43 and 45, Montfort teaches, "wherein the blade member has a thickness of 50 to 2000 micrometers, and preferably 100 to 500 micrometers (Table 1 teaches the blade being 2.5 mil and 10 mil, which equates to 63.5 and 254 micrometers respectively)."

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 9, 11 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa (US Pat. # 6,128,461) in view of Montfort.

Regarding claims 1 and 11, Yoshikawa teaches, "(Image forming apparatus including...) A cleaning unit for removing toner remaining on a surface of an image carrier of an image-forming apparatus, comprising: a vibration member (see Fig. 2, parts between 3 & 15, also see Col. 6, Ln. 21) extending in a direction of a width of the image carrier, the vibration member having at least one vibration application part (Fig. 2, ref. # 15) attached thereto; a blade member (3) attached to at least an end region of the vibration member, the blade member extending in the direction of the width of the image carrier; and a driving part (Abstract, Ln. 6-12) configured to drive the at least one

vibration application part at a driving frequency, the driving frequency being a resonance frequency (Col. 4, Ln. 36-40), wherein the vibration member is configured to provide vibration to the blade member and a force to press the blade member against the image carrier (Col. 6, Ln. 19-27), and wherein the at least one vibration application part and the blade member are disposed on a first side and a second side, respectively, of the vibration member at a free end thereof, the first side and the second side of the vibration member facing away from each other (Fig. 2, of Yoshikawa shows a vibration application part 15 and blade member 3 disposed on first and second sides {see vibration member between 15 & 3} at a free end and facing away from each other).” Yoshikawa does not teach, “the driving frequency being a natural driving frequency occurring at a time of assembly of the blade member and the image carrier” However, Montfort teaches the deficiencies of Yoshikawa (see Col. 4, Ln. 67- Col. 5, Ln. 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Yoshikawa’s invention to include the driving frequency being a natural driving frequency occurring at a time of assembly of the blade member.

The ordinary artisan would have been motivated to modify Yoshikawa’s invention in a manner described above for at least the purpose of applying the largest vibrations to the edge of the blade to ensure better cleaning.

Regarding claim 2, Yoshikawa teaches, “wherein the driving part is configured to be capable of changing the driving frequency (Col. 4, Ln. 36-44).”

Regarding claim 3, Yoshikawa teaches, "wherein the driving frequency of the driving part is set based on frictional resistance between the blade member and the image carrier (Col. 5, Ln. 38-61 & Col. 6, Ln. 34-37)."

Regarding claim 4, Yoshikawa teaches, "wherein the driving frequency of the driving part is set based on a coefficient of friction of the surface of the image carrier (Col. 1, Ln. 56-67, Col. 2, Ln. 1-26, Col. 5, Ln. 38-61 and Col. 6, Ln. 35-37)."

Regarding claim 5, Yoshikawa teaches, "wherein the driving frequency of the driving part is set based on rotational torque of the image carrier (Col. 5, Ln. 38-61 and Col. 6, Ln. 34-37, Rotational Torque → Rotational Friction)."

Regarding claim 6, Yoshikawa teaches, "wherein the driving frequency of the driving part is set based on a result of detection of a cleaning characteristic (Col. 7, Ln. 4-12)."

Regarding claim 7, Yoshikawa teaches, "wherein the at least one vibration application part includes a piezoelectric element (Col. 6, Ln. 19-20)."

Regarding claim 9, Yoshikawa teaches, "wherein the resonance frequency is determined by the blade member and the image carrier (Col. 5, Ln. 38-61 & Col. 6, Ln. 34-37, equivalent to friction resistance between the blade member and image carrier)."

Regarding claim 45, Montfort teaches, "wherein the blade member has a thickness of 100 to 500 micrometers (Table 1 teaches the blade being 2.5 mil and 10 mil, which equates to 63.5 and 254 micrometers respectively)."

Claims 8, 10, 12, 44 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshikawa in view of Monfort, and in further view of Kobayashi et al. (US Pub # 2002/0057927), hereinafter referred to as Kobayashi.

Regarding claim 8, the combination of Yoshikawa and Monfort do not teach, "wherein the toner is polymerized toner formed by polymerization." However, Kobayashi teaches the deficiencies of Yoshikawa (see paragraph [0152]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Yoshikawa and Monfort's invention to include wherein the toner is polymerized toner formed by polymerization.

The ordinary artisan would have been motivated to modify the combination of Yoshikawa and Monfort's invention in a manner described above for at least the purpose of reducing fog image and residual toner on the photo drum, in turn reducing the problems associated with cleaning the drum.

Regarding claim 10, Yoshikawa and Monfort teach, "at least one of an image carrier, a charging unit, a development unit, and a transfer unit; and a cleaning unit configured to remove toner remaining on a surface of the image carrier, the cleaning unit including: a vibration member extending in a direction of a width of the image carrier, the vibration member having at least one vibration application part attached thereto; a blade member attached to at least an end region of the vibration member, the blade member extending in the direction of the width of the image carrier; and a driving part configured to drive the at least one vibration application part at a driving frequency, the driving frequency being a natural resonance frequency occurring at a time of

assembly of the blade member and the image carrier, wherein the vibration member is configured to provide vibration to the blade member and a force to press the blade member against the image carrier and wherein the at least one vibration application part and the blade member are disposed on a first side and a second side, respectively, of the vibration member at a free end thereof, the first side and the second side of the vibration member facing away from each other (Shown in claim 1's 103(a) rejection above)." The combination of Yoshikawa and Monfort do not teach, "a process cartridge freely attachable to and detachable from a main body of an image forming apparatus." However, Kobayashi teaches the deficiencies of Yoshikawa (see Paragraph [0087]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Yoshikawa and Monfort's invention to include a process cartridge freely attachable to and detachable from a main body of an image forming apparatus.

The ordinary artisan would have been motivated to modify the combination of Yoshikawa and Monfort's invention in a manner described above for at least the purpose of providing the ability to exchange an expired cartridge void of toner (easier maintenance).

Regarding claim 12, Yoshikawa teaches, "at least one of an image carrier, a charging unit, a development unit, and a transfer unit; and a cleaning unit configured to remove toner remaining on a surface of the image carrier, the cleaning unit including: a vibration member extending in a direction of a width of the image carrier, the vibration

member having at least one vibration application part attached thereto; a blade member attached to at least an end region of the vibration member, the blade member extending in the direction of the width of the image carrier; and a driving part configured to drive the at least one vibration application part at a driving frequency, the driving frequency being a natural resonance frequency at a time of assembly of the blade member and the image carrier, wherein the vibration member is configured to provide vibration to the blade member and a force to press the blade member against the image carrier and wherein the at least one vibration application part and the blade member are disposed on a first side and a second side, respectively, of the vibration member at a free end thereof, the first side and the second side of the vibration member facing away from each other (Shown in claim 1's 103(a) rejection above).” The combination of Yoshikawa and Monfort do not teach, “an image-forming apparatus forming a color image, comprising: a plurality of process cartridges freely attachable to and detachable from a main body of the image forming apparatus.” However, Kobayashi teaches the deficiencies of Yoshikawa (see Fig. 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the combination of Yoshikawa and Monfort’s invention to include an image-forming apparatus forming a color image, comprising: a plurality of process cartridges freely attachable to and detachable from a main body of the image forming apparatus.

The ordinary artisan would have been motivated to modify the combination of Yoshikawa and Monfort’s invention in a manner described above for at least the

purpose of providing the ability to exchange an expired cartridge void of toner (easier maintenance).

Regarding claims 44 and 46, Montfort teaches, "wherein the blade member has a thickness of 50 to 2000 micrometers, and preferably 100 to 500 micrometers (Table 1 teaches the blade being 2.5 mil and 10 mil, which equates to 63.5 and 254 micrometers respectively)."

### ***Response to Arguments***

Applicant's arguments filed November 7, 2007 have been fully considered but they are not persuasive. Applicant states, "Monfort et al. does not teach or suggest the combined limitations in each of independent claims 1 and 2 as now amended."

It shall be noted that claim 2 is a dependent claim, contrary to applicant's remarks. It is respectfully submitted that applicant appears to mean claims 1 and 11.

The Office disagrees with applicant's arguments in as much as Monfort clearly shows: a vibration member (84), attached thereto on first and second sides is a vibration application part (102) and a blade member (91). The vibration applicant part and blade member each on a free end and first and second sides face away from each other.

There are no constraints set on the claimed "free end thereof" as there is no reference point to determine what is meant by a "free end". In other words, there is no "fixed end" to determine what limits the claimed "free end".

Applicant states, "the combination of Yoshikawa and Monfort et al. does not teach or suggest the combined limitations in each of independent claims 1 and 11 as now amended."

The Office disagrees with applicant's arguments in as much as Yoshikawa clearly shows: a vibration member (see Fig. 2, parts between 3 & 15, also see Col. 6, Ln. 21), attached thereto on first and second sides is a vibration application part (15) and a blade member (3). The vibration applicant part and blade member each on a free end and first and second sides face away from each other (on either side of parts between 3 & 15).

Again, there are no constraints set on the claimed "free end thereof" as there is no reference point to determine what is meant by a "free end". In other words, there is no "fixed end" to determine what limits the claimed "free end".

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

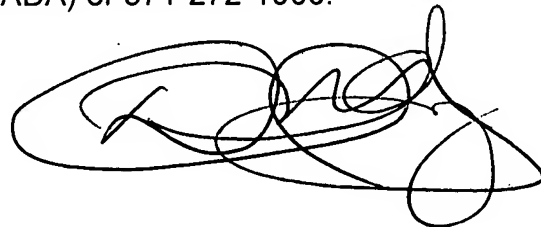
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan D. Walsh whose telephone number is 571-272-2726. The examiner can normally be reached on M-F 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on 571-272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ryan D. Walsh  
Patent Examiner  
Art Unit 2852

A handwritten signature in black ink, appearing to read 'D. Gray', enclosed within a large, loopy oval shape.

DAVID M. GRAY  
SUPERVISORY PATENT EXAMINER